



December 9, 1999

## MEMORANDUM

TO: Mary Jo Krolewski, Gene-Hua Sun, Peter Tsirigotis, EPA

FROM: Kamala R. Jayaraman

CC: John Blaney, Barry Galef, Bill Moody, Walter Gawlak, ICF

SUBJECT: Description of the Electronic Files pertaining to the 13 jurisdiction-Section 126 Policy Final Rulemaking.

EPA Contract No.68-D7-0081, Task 004, Subtask 03.

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This memorandum summarizes the contents of the electronic files that pertain to the 13 jurisdiction-Section 126 Policy Final Rulemaking, contained in the attached CD ROM, titled "Final Rule." This CD ROM contains IPM files and the results of the Partial State Analysis.

The IPM runs and brief descriptions of these runs are included below.

- *ipm98j*: This base case run includes Title IV SO<sub>2</sub> and NO<sub>x</sub> emission constraints.

The following policy case IPM runs include more stringent NO<sub>x</sub> emission constraints for the electricity generating units in the affected 13 jurisdictions, in addition to the Title IV SO<sub>2</sub> and NO<sub>x</sub> emission constraints.<sup>1</sup>

- *126ipm1*: This policy run is based on the NO<sub>x</sub> emission rate standard of 0.15 lbs/MMBtu. This emission rate standard corresponds to the total NO<sub>x</sub> emissions cap of approximately 339,800 tons for the electric generating units (that are greater than 25 MW of capacity) located in the affected 13 jurisdictions.
- *126ipm3*: This policy run is based on the NO<sub>x</sub> emission rate standard of 0.12 lbs/MMBtu. This emission rate standard corresponds to the total NO<sub>x</sub> emissions cap of approximately 271,840 tons for the electric generating units (that are greater than 25 MW of capacity) located in the affected 13 jurisdictions.
- *126ipm4*: This policy run is based on the NO<sub>x</sub> emission rate standard of 0.20 lbs/MMBtu. This emission rate standard corresponds to the total NO<sub>x</sub> emissions cap of approximately 453,070 tons for the electric generating units (that are greater than 25 MW of capacity) located in the affected 13 jurisdictions.

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<sup>1</sup> The affected 13 jurisdictions include District of Columbia, Delaware, Indiana, Kentucky, Maryland, Michigan, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Virginia, and West Virginia.

- *126ipm5*: This policy run is based on the NO<sub>x</sub> emission rate standard of 0.25 lbs/MMBtu. This emission rate standard corresponds to the total NO<sub>x</sub> emissions cap of approximately 566,330 tons for the electric generating units (that are greater than 25 MW of capacity) located in the affected 13 jurisdictions.

Selected input and output files of each of these IPM runs are included in a separate sub-directory, the name of which corresponds to the IPM run itself (e.g., 126ipm1). Each IPM run subdirectory contains the following IPM files.

- *DAT* - This file (e.g., 126ipm1.dat) contains assumptions and parameters of the model plants, such as the plant heat rate, capacity, capital (if the unit is new or if the unit is installing a pollution control technology or repowering), fixed operation and maintenance (O&M), and variable O&M costs, other relevant operating information, forecasts of electricity demand by IPM regions,<sup>2</sup> planning reserve margin, transmission capabilities between the IPM regions, and other types of assumptions pertaining the model run set up.
- *SYS* - This file (e.g., 126ipm1sys.txt) contains the system-wide results for the model run years 2001, 2003, 2005, 2007, 2010, and 2020 for the contiguous U.S. The results include total generating capacity, capacity additions and changes, generation, and capacity factor, by type of electric generation technology and pollution control retrofit category. In addition, the total system costs and system-wide emissions of SO<sub>2</sub>, NO<sub>x</sub>, Mercury, and CO<sub>2</sub> are included in the results. The year 2020 is the last model run year in this analysis and the model projections for 2020 should not be relied upon for further analysis.
- *RPE* - This file (e.g., 126ipm1.rpe) summarizes the operational features of, and resulting emissions from, individual model plants for the years 2001, 2003, 2005, 2007, 2010, and 2020. For each of these years, this file contains information on generation, emissions of various pollutants, and capital, fixed operation and maintenance (O&M), and variable O&M, costs for each individual model plant, by region, and by type of electric generation technology and pollution control retrofit category. In addition, this file contains summaries of model plants' generation and emissions by region, and by type of electric generation technology and pollution control retrofit category. The year 2020 is the last model run year in this analysis, and the model projections for 2020 should not be relied upon for further analysis.
- *CAR* - These files contain the dispatch decisions of the model plants. Specifically, these files contain information on generating and reserve margin capacity, generation, and capacity factor for each individual model plant, by type of electric generation technology and pollution control retrofit category, for the model run years, 2001 through 2010. In addition, these files also include information on firm purchases and sales, by IPM region, for the model run years, 2001 through 2010. For example, the files, *126ipm1car.t01* - *126ipm1car.t10* contain the forecasted model results of the IPM run, *126ipm1*, for the years 2001 through 2010, respectively.
- *ACR* - These files are the annual cost reports of system. Specifically, these files contain capital (if the unit is new or if the unit is installing a pollution control technology or repowering), fixed O&M, and variable O&M, costs, generating capacity, generation, and

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<sup>2</sup>IPM regions could be considered as sub-divisions of North American Reliability Council (NERC) regions for the most part. For example, the NERC region, Mid-Atlantic Area Council (MAAC), has been divided into the following three IPM regions: MAAC - East (MACE), MAAC - West (MACW), and MAAC - South (MACS).

capacity factor for each individual model plant, by type of electric generation technology and pollution control retrofit category, for the model run years, 2001 through 2010. For example, the files, *126ipm1acr.t01* - *126ipm1acr.t10* contain the forecasted model results of the IPM run, *126ipm1*, for the years 2001 through 2010, respectively.

- *Parsed* - In addition to the above listed IPM files, *ipm98j* and *126ipm1* subdirectories contain the output files of the parsing process, which allocates the fuel use and emissions projections of IPM model plants to individual boilers/generators in the system. The files, *ipm98j\_03\_Parsed* and *ipm98j\_07\_Parsed* contain the parsing results of the IPM run, *ipm98j*, for the years 2003 and 2007, respectively. The files, *126ipm1\_03\_Parsed* and *126ipm1\_07\_Parsed* contain the parsing results of the policy case IPM run, *126ipm1*, for the years 2003 and 2007, respectively. The model projections of the other policy case IPM runs, *126ipm3* through *126ipm5*, were not parsed.

The *Partial State Analysis* subdirectory contains an Excel spreadsheet file, titled “Partial State Analysis Results.” The worksheet titled, “Fuel Use and Emissions” contains the summary of capacity, fuel use, and NO<sub>x</sub> emissions projections (for the year 2007), associated with the new and existing electric generating units that are located in those areas of Indiana, Kentucky, Michigan, and New York that are exempt from the 13 jurisdiction-Section 126 Final Rule.

The worksheet titled, “Control Costs” contains the summary of capacity, NO<sub>x</sub> control costs and NO<sub>x</sub> emission reductions (in 2007) associated with the existing electric generating units that are located in those areas of Indiana, Kentucky, Michigan, and New York that are exempt from the 13 jurisdiction-Section 126 Final Rule.

These analyses were performed using the parsed results for the IPM run, *126ipm1*, which corresponds to the NO<sub>x</sub> emission rate standard of 0.15 lbs/MMBtu of the 13 jurisdiction-Section 126 Final Rule, for the year 2007, and the EPA’s combustion control cost estimates (*TitleIV~2.xls*, 1998).

If you have any questions, please call Kamala at (703) 934-3331.